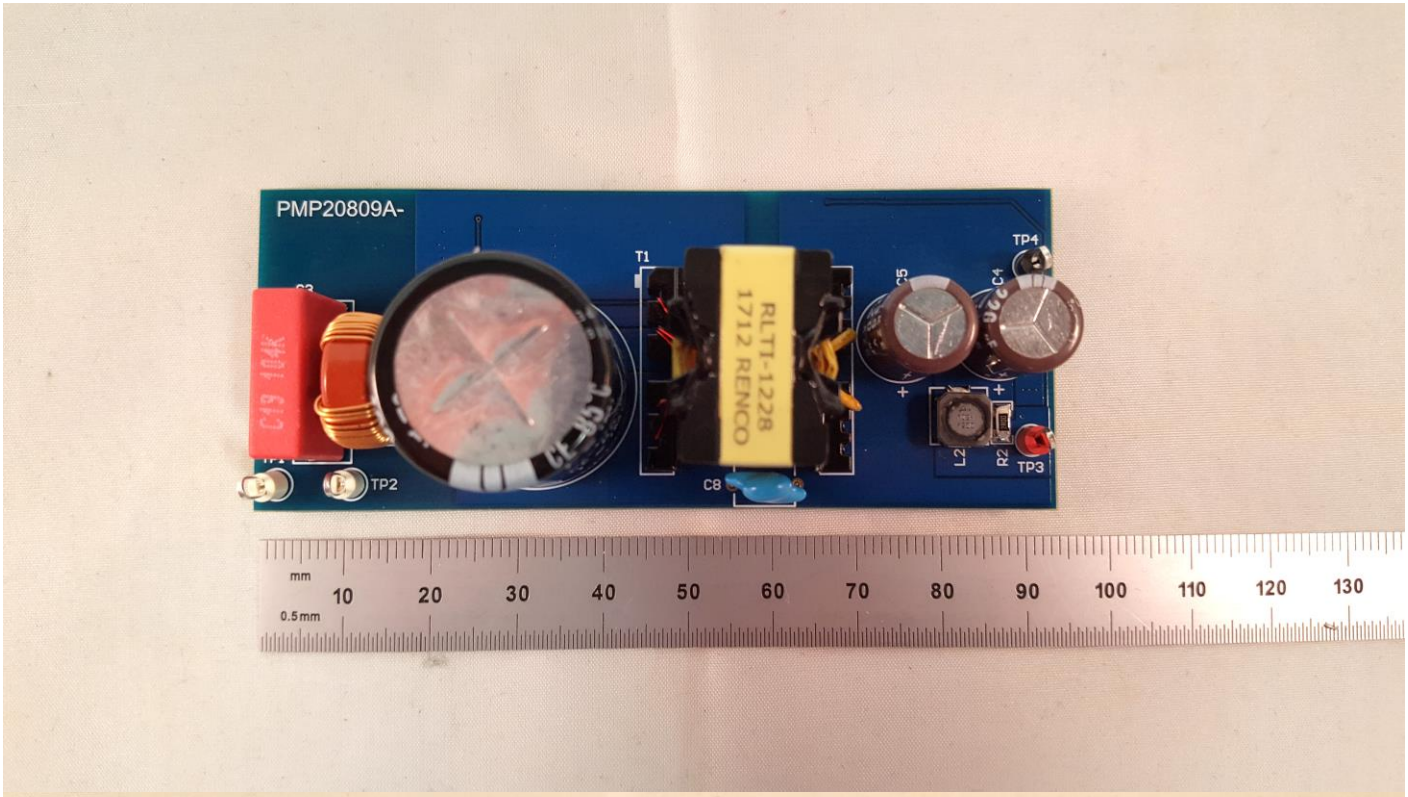
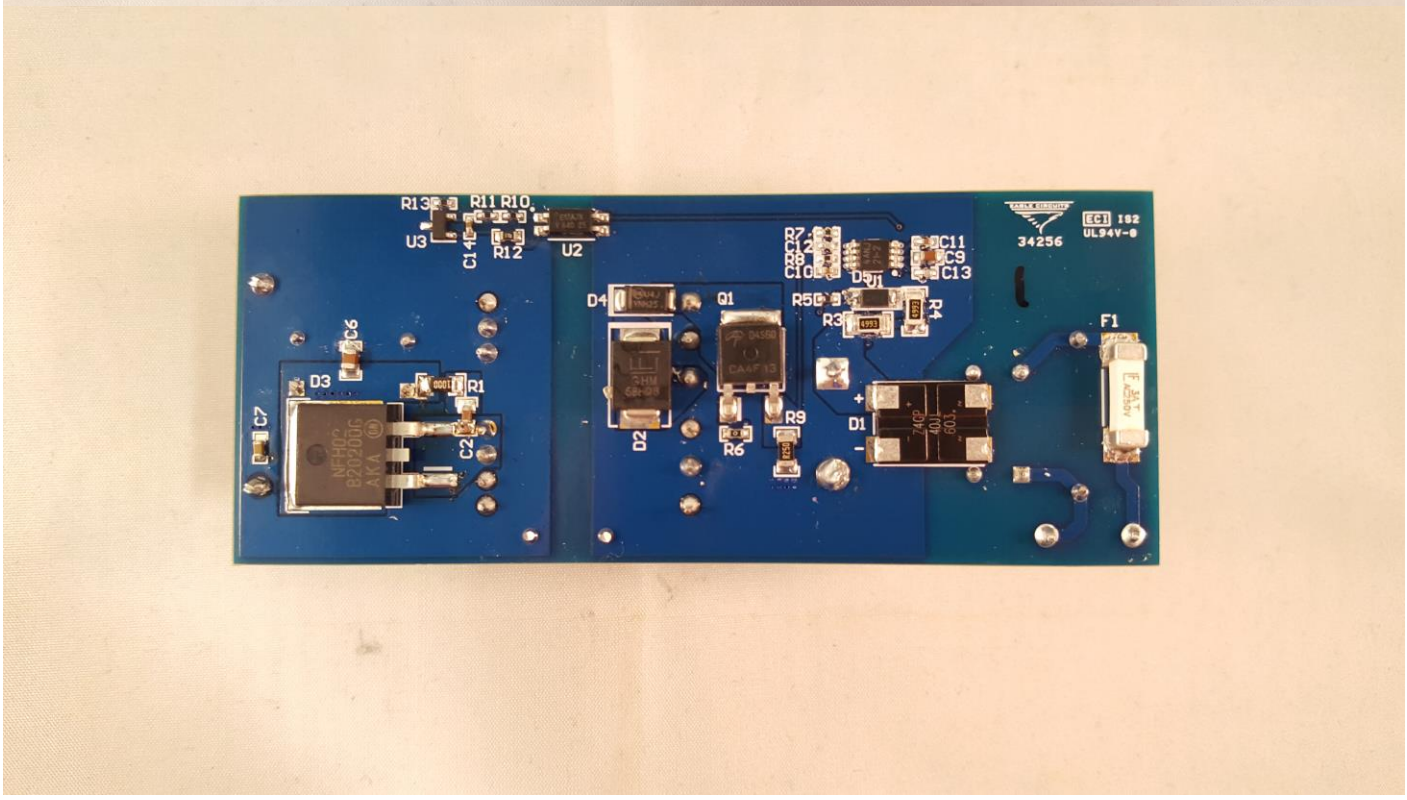
1 Photos

The photographs below show the PMP20809 Rev A prototype assembly. (Not pictured is the 47uF aluminum cap across C9)





2 Standby Power

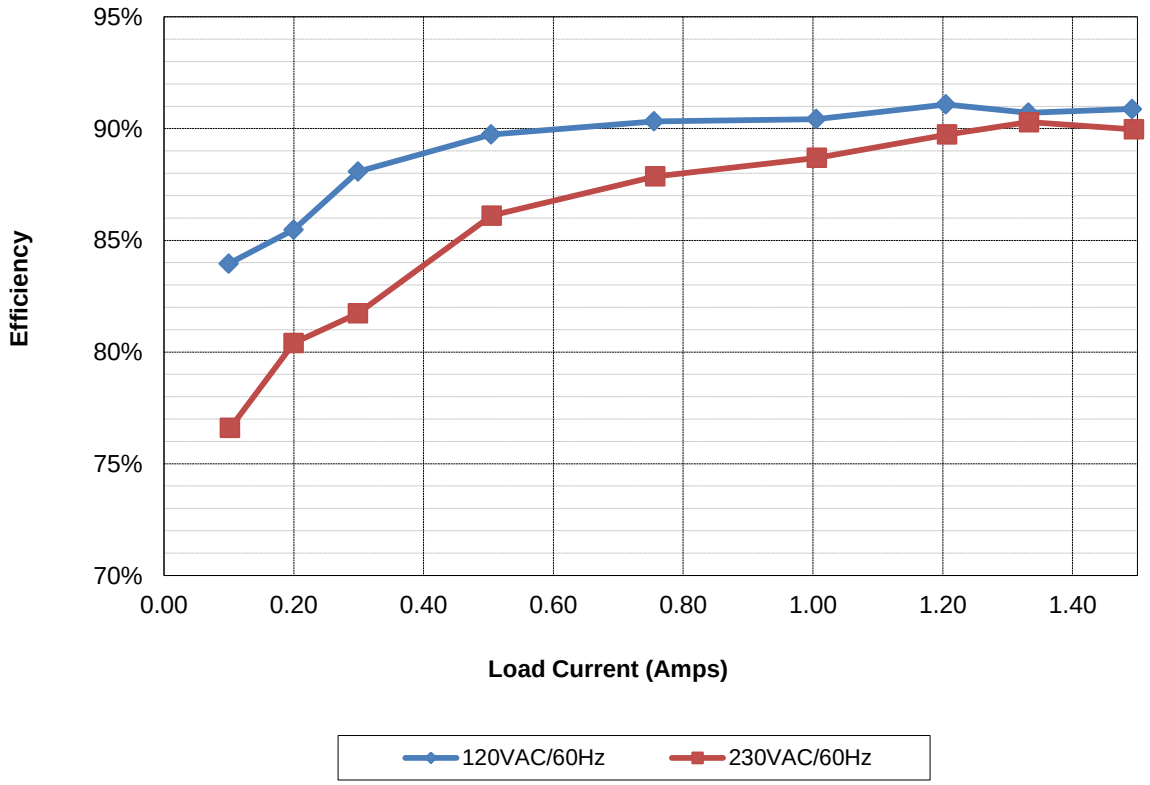
Measured with cable unplugged

No Load	Pin AC (W)
120VAC/60Hz	0.165
230VAC/50Hz	0.352

3 Efficiency

3.1 Total Efficiency 24Vout

The efficiency measurements are shown below for 120VAC and 230VAC inputs.



PMP20809 Rev A Test Results

120VAC/60Hz **Sweep Load on 24V**

Iout (24V)	Vout (24V)	Vin (V)	Iin (A)	Pin (W)	PF	Pout (W)	Losses (W)	Efficiency
0.000	24.070	120.2	0.011	0.165	0.129	0.00	0.17	0.0%
0.100	24.070	120.2	0.079	2.867	0.301	2.41	0.46	84.0%
0.200	24.070	120.2	0.141	5.632	0.333	4.81	0.82	85.5%
0.299	24.070	120.2	0.190	8.171	0.358	7.20	0.97	88.1%
0.504	24.070	120.2	0.281	13.518	0.401	12.13	1.39	89.7%
0.755	24.070	120.2	0.382	20.120	0.439	18.17	1.95	90.3%
1.005	24.060	120.2	0.479	26.740	0.465	24.18	2.56	90.4%
1.205	24.060	120.2	0.550	31.830	0.481	28.99	2.84	91.1%
1.332	24.060	120.2	0.598	35.330	0.492	32.05	3.28	90.7%
1.492	24.060	120.2	0.654	39.500	0.502	35.90	3.60	90.9%

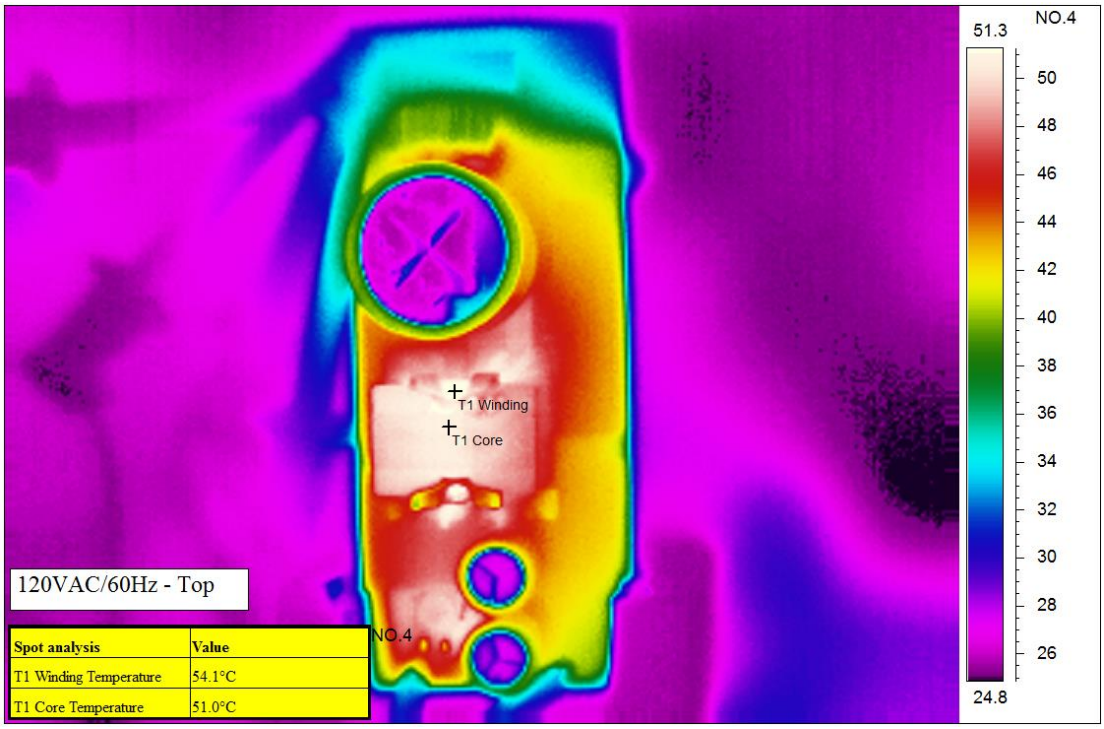
230VAC/50Hz **Sweep Load on 24V**

Iout (24V)	Vout (24V)	Vin (V)	Iin (A)	Pin (W)	PF	Pout (W)	Losses (W)	Efficiency
0.000	24.070	120.2	0.016	0.352	0.098	0.00	0.35	0.0%
0.102	24.070	120.2	0.058	3.205	0.241	2.46	0.75	76.6%
0.200	24.070	120.2	0.093	5.987	0.279	4.81	1.17	80.4%
0.299	24.070	120.2	0.130	8.806	0.295	7.20	1.61	81.7%
0.505	24.060	120.2	0.198	14.111	0.310	12.15	1.96	86.1%
0.757	24.060	120.2	0.279	20.730	0.323	18.21	2.52	87.9%
1.006	24.060	120.2	0.353	27.290	0.335	24.20	3.09	88.7%
1.207	24.060	120.2	0.407	32.360	0.345	29.04	3.32	89.7%
1.333	24.060	120.2	0.437	35.520	0.353	32.07	3.45	90.3%
1.495	24.060	120.2	0.477	39.980	0.364	35.97	4.01	90.0%

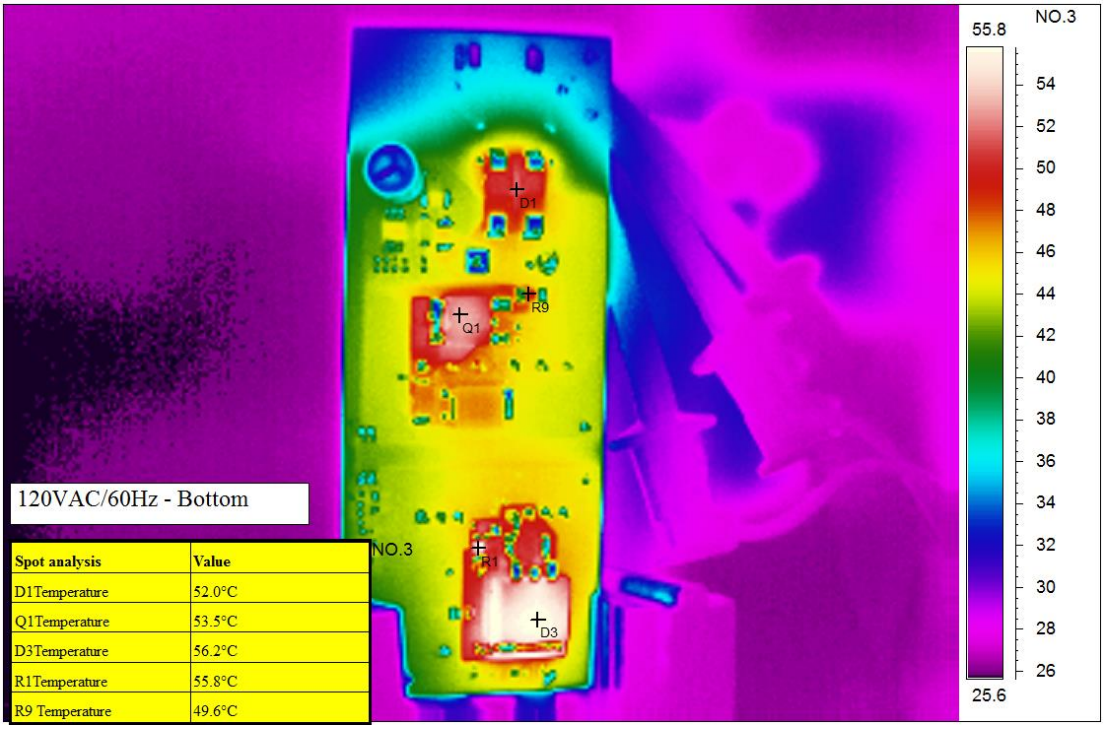
4 Thermal Images

The thermal images below show the 24V output loaded with 1.5A. The ambient temperature was 25ºC, with no airflow.

4.1 120VAC/60Hz

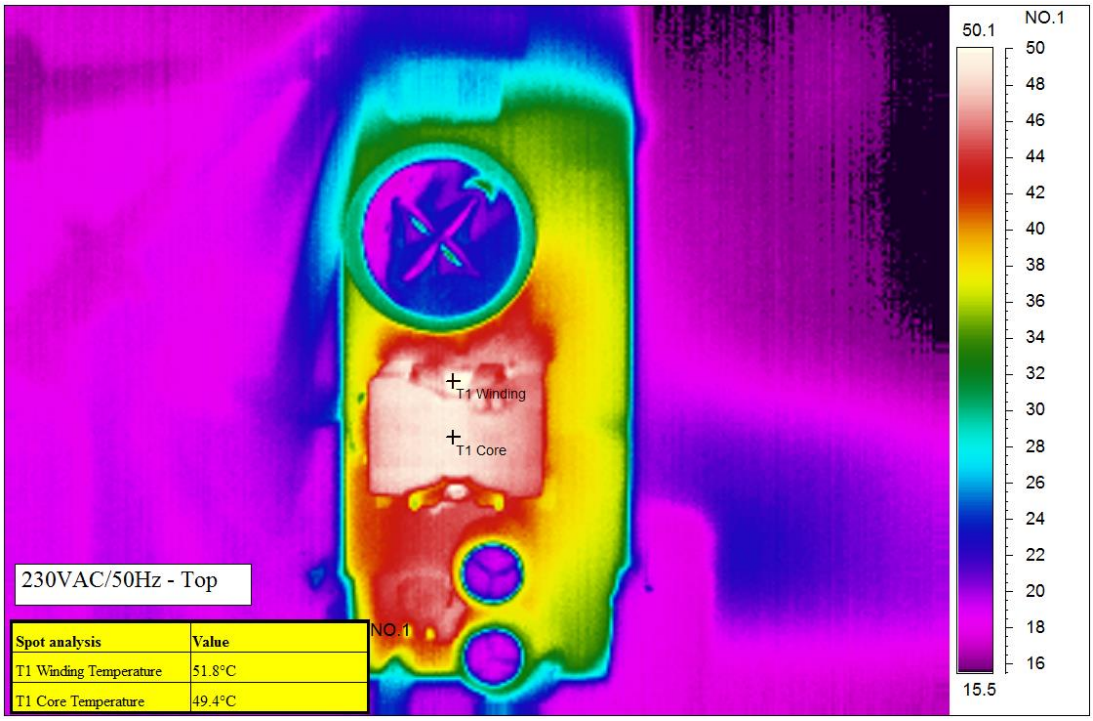


Spot analysis	Value
T1 Winding Temperature	54.1°C
T1 Core Temperature	51.0°C

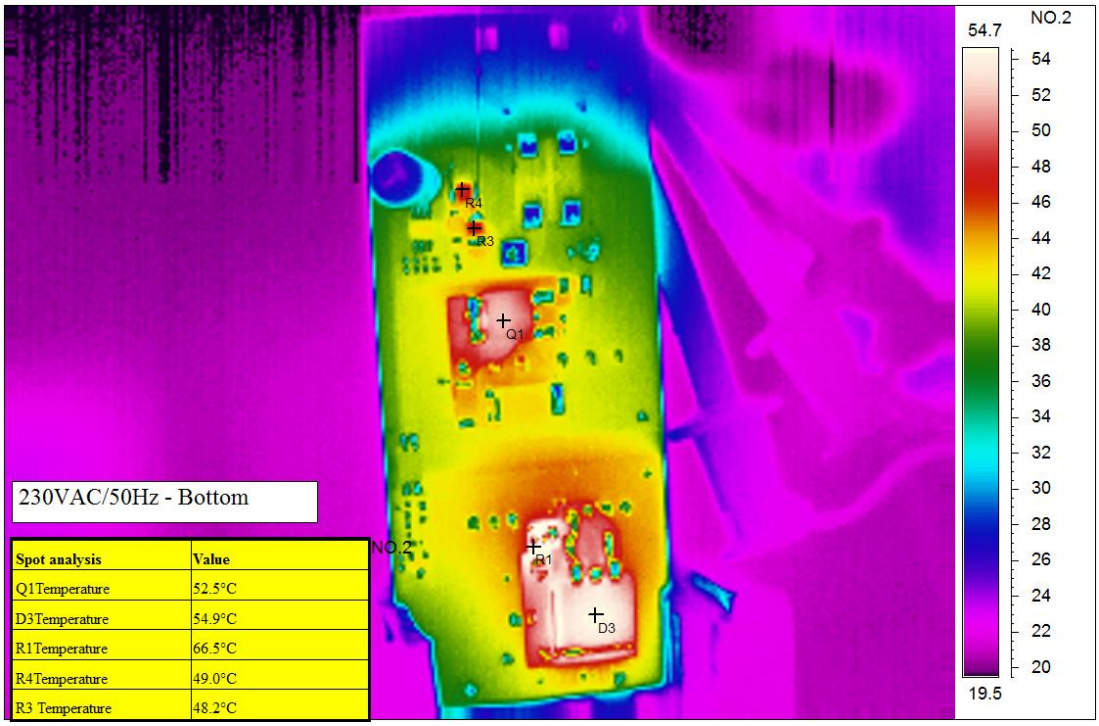


Spot analysis	Value
D1Temperature	52.0°C
Q1Temperature	53.5°C
D3Temperature	56.2°C
R1Temperature	55.8°C
R9 Temperature	49.6°C

4.2 230VAC/50Hz



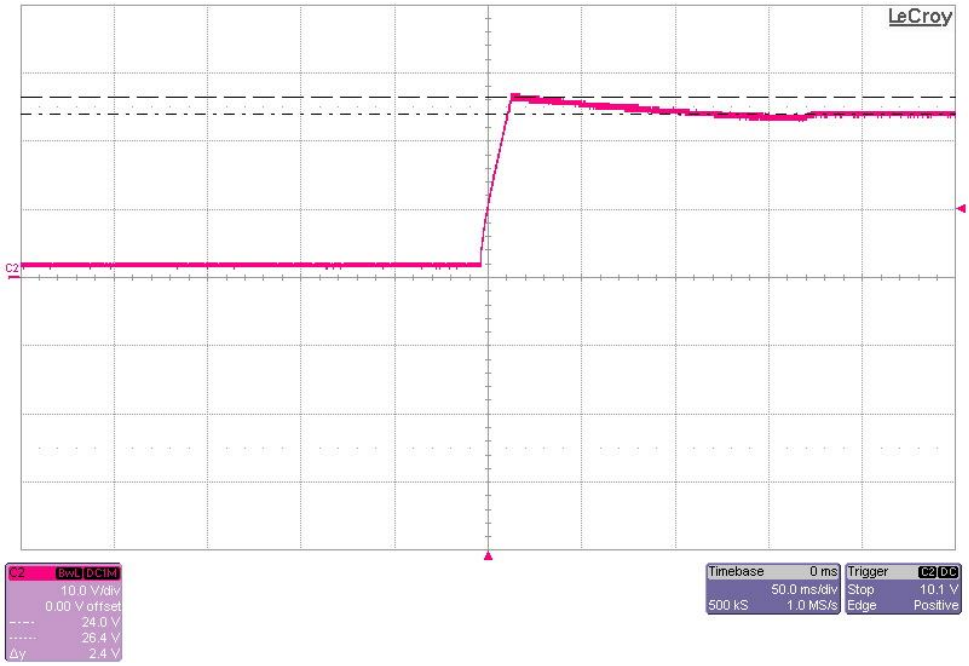
Spot analysis	Value
T1 Winding Temperature	51.8°C
T1 Core Temperature	49.4°C



Spot analysis	Value
Q1Temperature	52.5°C
D3Temperature	54.9°C
R1Temperature	66.5°C
R4Temperature	49.0°C
R3 Temperature	48.2°C

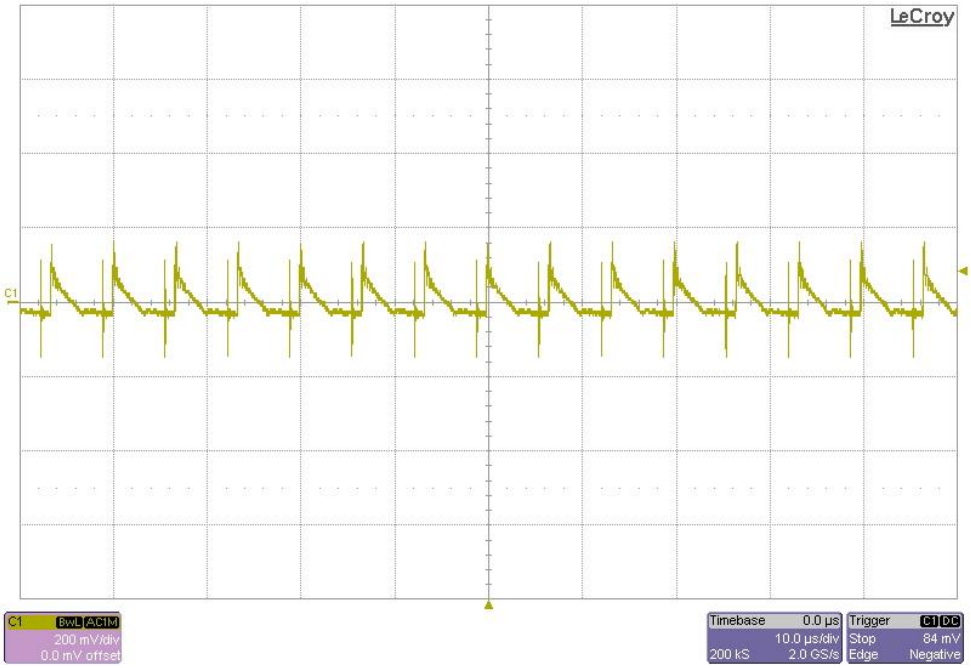
5 Startup

The image below shows the default output voltage of 24V at startup with no external load.



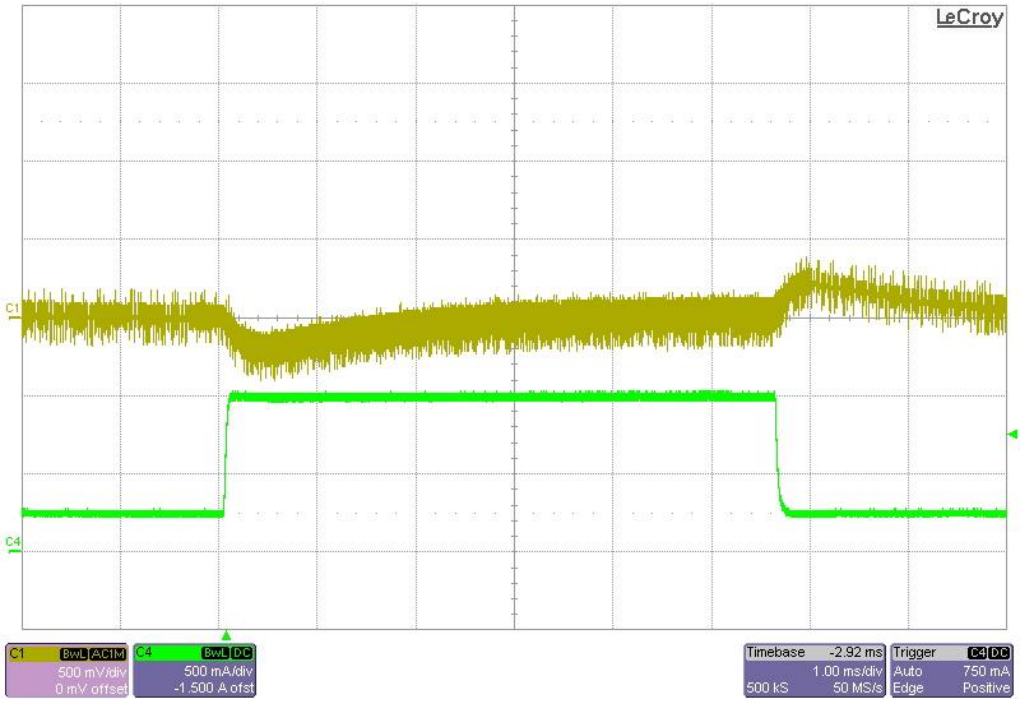
6 Output Ripple Voltage

6.1 230VAC/50Hz – 24V@1.5A Load



7 Load Transient

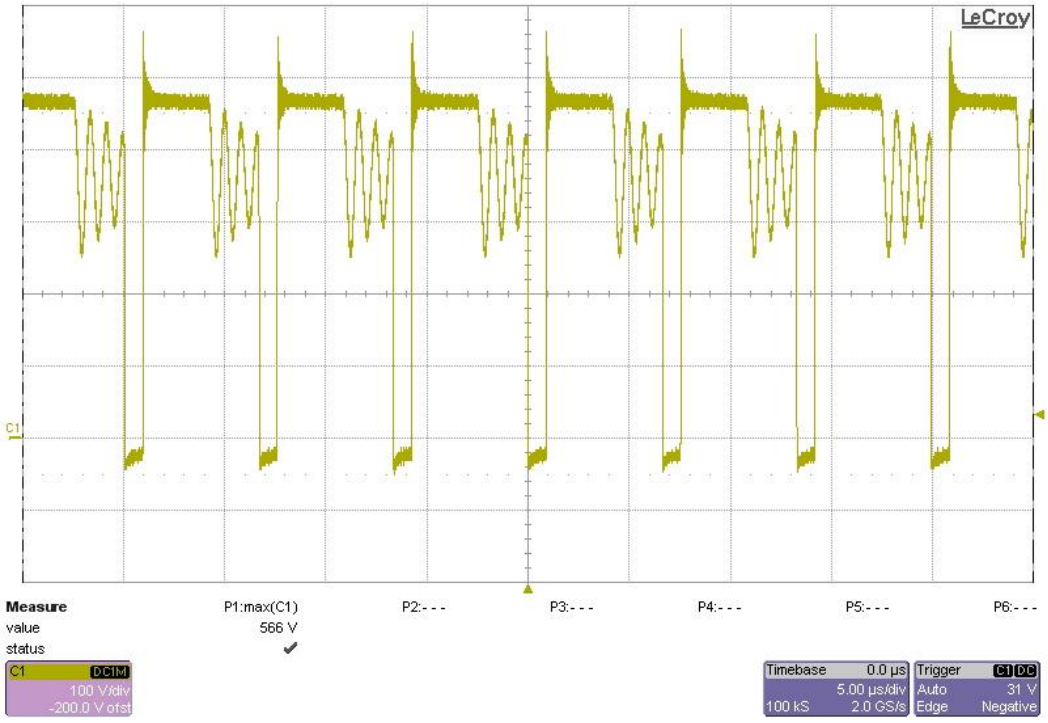
The following load transient response was captured while switching between a 0.25A and 1A load.



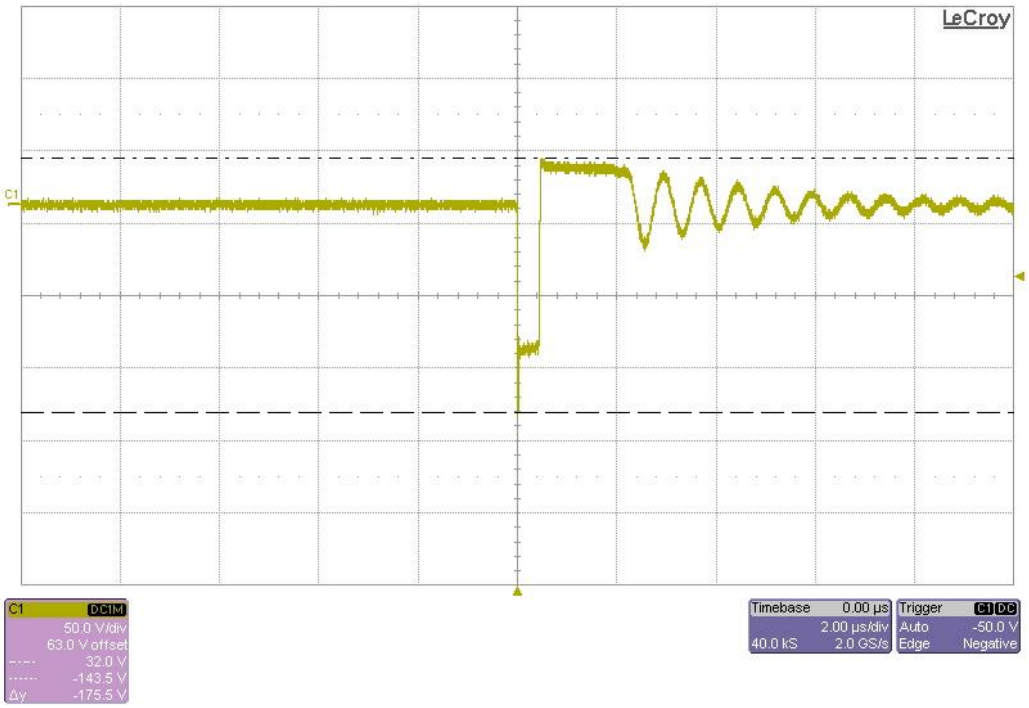
8 Switching Waveforms

The input was 265VAC/50Hz, and the output was loaded with 1.5A.

8.1 24Vout, Drain of Primary FET – Q1



8.2 24Vout, Anode of rectifier D3



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